

7355

BEAM PENTODE

FOR AF POWER AMPLIFIER APPLICATIONS

DESCRIPTION AND RATING

The *7355* is a beam-power pentode primarily designed for use in the power-output stage of high-fidelity audio-frequency amplifier systems.

GENERAL

ELECTRICAL

Cathode—Coated Unipotential
Heater Characteristics and Ratings

Heater Voltage, AC or DC*	6.3±0.6	Volts
Heater Current†	0.8	Amperes
Direct Interelectrode Capacitances, approximate‡		
Grid-Number 1 to Plate: (g1 to p)	0.5	pf
Input: g1 to (h+k+g2+b.p.)	13	pf
Output: p to (h+k+g2+b.p.)	6.0	pf

MECHANICAL

Mounting Position—Any
Envelope—T-9, Glass
Base—B6-229, Intermediate-Shell Octal 6-Pin with external barriers

MAXIMUM RATINGS

DESIGN-MAXIMUM VALUES

Plate Voltage	500	Volts
Screen Voltage	400	Volts
Positive DC Grid-Number 1 Voltage	0	Volts
Plate Dissipation	18	Watts
Screen Dissipation (Continuous)	3.5	Watts
Screen Dissipation (Peaks of Speech and Music)	7.0	Watts
DC Cathode Current	100	Milliamperes
Heater-Cathode Voltage		
Heater Positive with Respect to Cathode		
DC Component	100	Volts
Total DC and Peak	200	Volts
Heater Negative with Respect to Cathode		
Total DC and Peak	200	Volts
Grid-Number 1 Circuit Resistance		
With Fixed Bias	0.3	Megohms
With Cathode Bias	1.0	Megohms

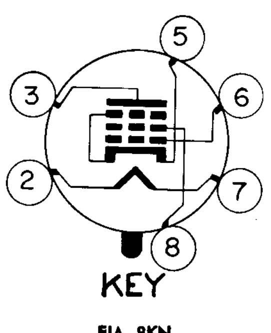
Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogey electron tube of a specified type as defined by its published data and should not be exceeded under the worst probable conditions.

The tube manufacturer chooses these values to provide acceptable serviceability of the tube, making allowance for the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration.

The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogey tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in the characteristics of all other electron devices in the equipment.



BASING DIAGRAM

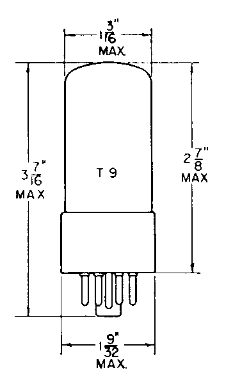


EIA 8KN

TERMINAL CONNECTIONS

Pin 2—Heater
Pin 3—Plate
Pin 5—Cathode and Beam Plates
Pin 6—Grid Number 1
Pin 7—Heater
Pin 8—Grid Number 2 (Screen)

PHYSICAL DIMENSIONS



EIA 9-15

CHARACTERISTICS AND TYPICAL OPERATION

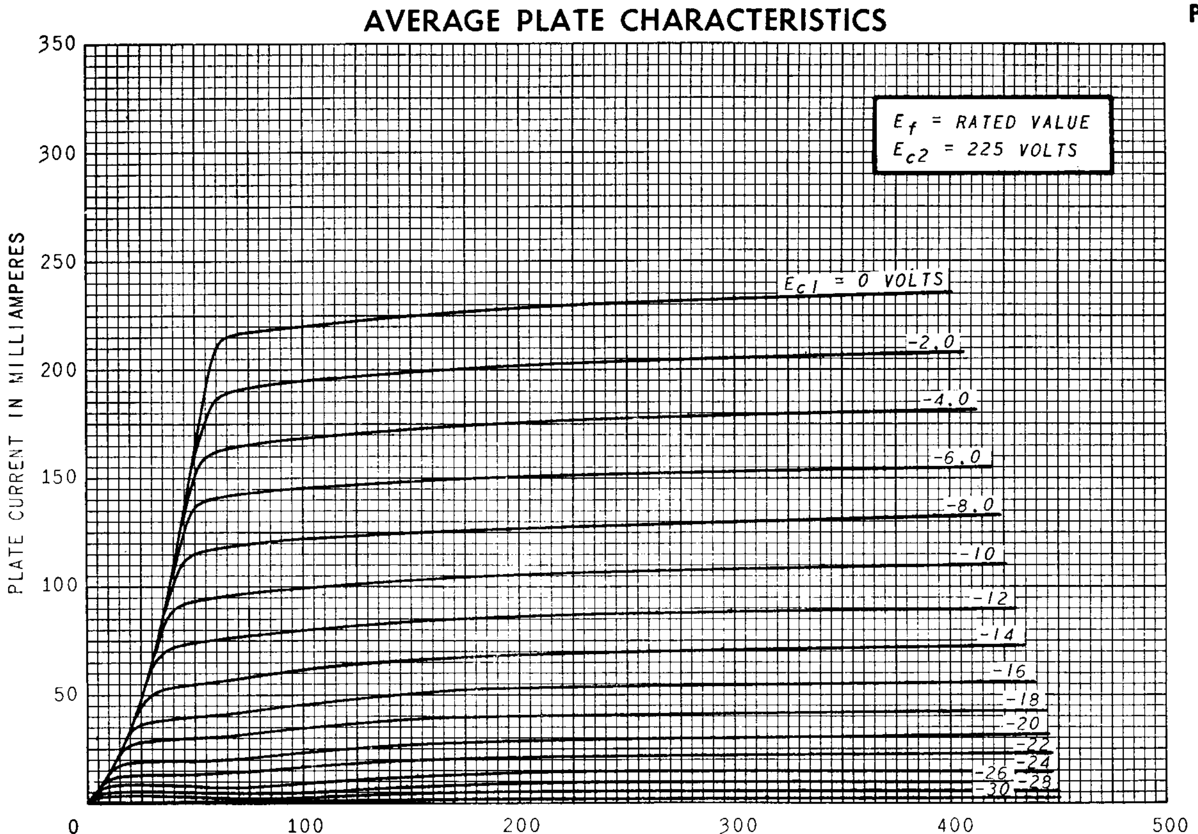
CLASS A_1 AMPLIFIER

Characteristic	Value	Unit
Plate Voltage	250	Volts
Screen Voltage	225	Volts
Grid-Number 1 Voltage	−15	Volts
Peak AF Grid-Number 1 Voltage	15	Volts
Plate Resistance, approximate	42000	Ohms
Transconductance	7600	Micromhos
Zero-Signal Plate Current	62	Milliamperes
Maximum-Signal Plate Current	74	Milliamperes
Zero-Signal Screen Current	3.2	Milliamperes
Maximum-Signal Screen Current	16.5	Milliamperes
Load Resistance	2500	Ohms
Total Harmonic Distortion, approximate	15	Percent
Maximum-Signal Power Output	9.0	Watts
Grid-Number 1 Voltage, approximate Ib=500 Microamperes	−35	Volts

PUSH-PULL CLASS AB_1 AMPLIFIER, VALUES FOR TWO TUBES

Characteristic			Unit
Plate Voltage	300	400	Volts
Screen Voltage	250	300	Volts
Grid-Number 1 Voltage	−21	−34	Volts
Peak AF Grid-to-Grid Voltage	42	60	Volts
Zero-Signal Plate Current	100	56	Milliamperes
Maximum-Signal Plate Current	185	175	Milliamperes
Zero-Signal Screen Current	5.5	3.5	Milliamperes
Maximum-Signal Screen Current	24	24	Milliamperes
Effective Load Resistance, Plate-to-Plate	4000	5000	Ohms
Total Harmonic Distortion	2.0	6.0	Percent
Maximum-Signal Power Output	28.5	40	Watts

* The equipment designer should design the equipment so that heater voltage is centered at the specified bogey value, with heater supply variations restricted to maintain heater voltage within the specified tolerance.
† Heater current of a bogey tube at Ef=6.3 volts.
‡ Without external shield.



AVERAGE PLATE CHARACTERISTICS

E_f = RATED VALUE
E_{c2} = 225 VOLTS

+20
+15
+10
+5.0
E_{c1} = 0 VOLTS
-5.0
-10
-15
-20
-25
-30

PLATE CURRENT IN MILLIAMPERES

700, 600, 500, 400, 300, 200, 100

0, 100, 200, 300, 400, 500

PLATE VOLTAGE IN VOLTS

K-55611-TD85-2

SEPTEMBER 16, 1959



AVERAGE CHARACTERISTICS

E_f = RATED VALUE
E_{c2} = 225 VOLTS

I_{c1} @ E_{c1} = +20 VOLTS
+15
+10
I_{c2} @ E_{c1} = 0 VOLTS
+5.0
-5.0
-10
-15
-20
-25
-30

SCREEN CURRENT (I_{c2}) IN MILLIAMPERES
GRID-NUMBER 1 CURRENT (I_{c1}) IN MILLIAMPERES
PLATE VOLTAGE IN VOLTS

K-55611-TD85-3
SEPTEMBER 16, 1959

AVERAGE TRANSFER CHARACTERISTICS

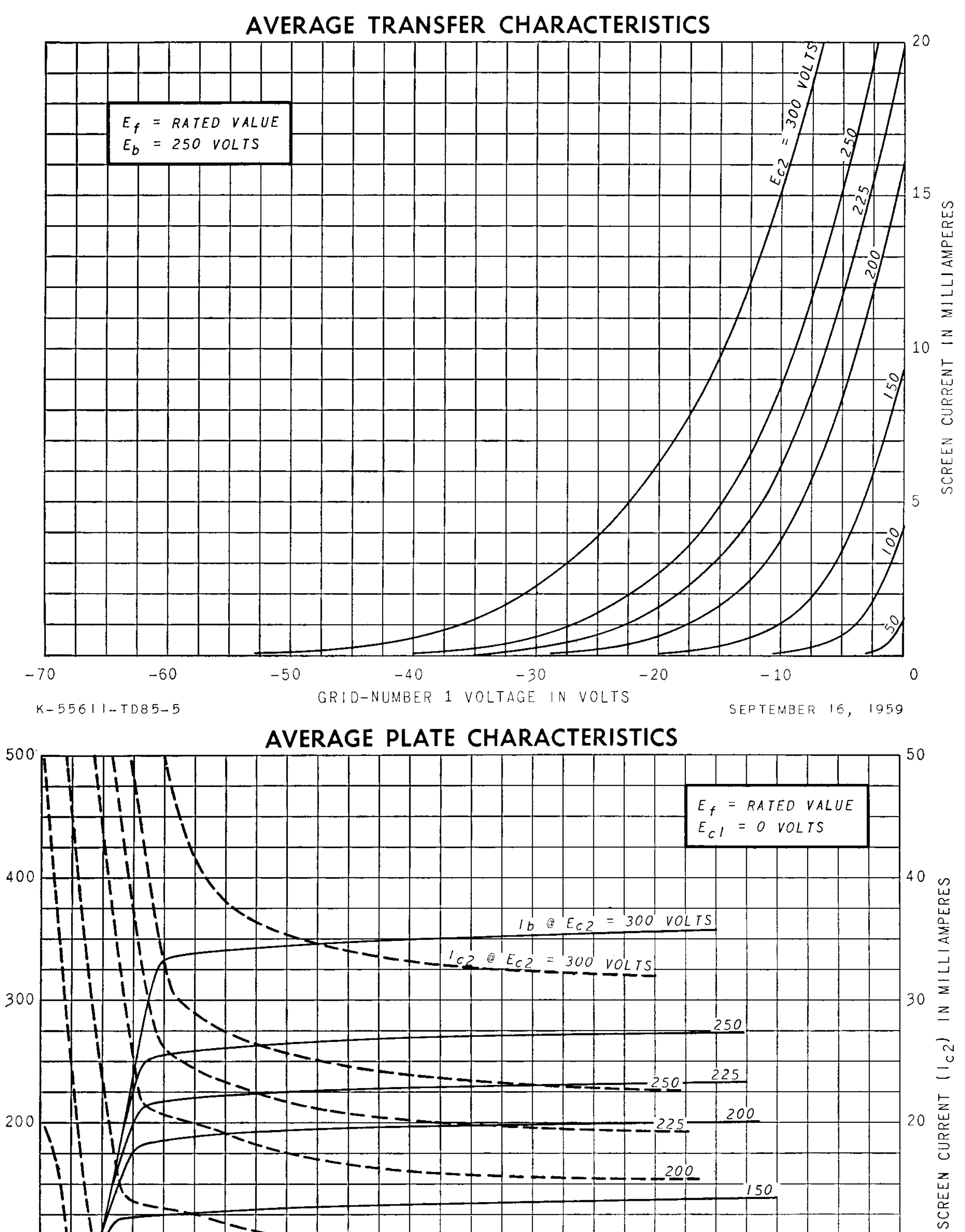
E_f = RATED VALUE
E_b = 250 VOLTS

E_{c2} = 300 VOLTS
250
225
200
150
100
50

PLATE CURRENT IN MILLIAMPERES
GRID-NUMBER 1 VOLTAGE IN VOLTS

K-55611-TD85-4
SEPTEMBER 16, 1959

AVERAGE TRANSFER CHARACTERISTICS





AVERAGE PLATE CHARACTERISTICS

E_f = RATED VALUE
E_{c2} = 250 VOLTS

E_{c1} = 0 VOLTS, -2.0, -4.0, -6.0, -8.0, -10, -12, -14, -16, -18, -20, -22, -24, -26, -28, -30

PLATE CURRENT IN MILLIAMPERES: 0, 50, 100, 150, 200, 250, 300, 350

PLATE VOLTAGE IN VOLTS: 0, 100, 200, 300, 400, 500

K-55611-TD85-7

SEPTEMBER 16, 1959

AVERAGE PLATE CHARACTERISTICS

E_f = RATED VALUE
E_{c2} = 250 VOLTS

+20, +15, +10, +5.0, E_{c1} = 0 VOLTS, -5.0, -10, -15, -20, -25, -30

PLATE CURRENT IN MILLIAMPERES: 0, 100, 200, 300, 400, 500, 600, 700

PLATE VOLTAGE IN VOLTS: 0, 100, 200, 300, 400, 500

K-55611-TD85-8

SEPTEMBER 16, 1959

AVERAGE CHARACTERISTICS

E_f = RATED VALUE
E_{c2} = 250 VOLTS

I_{c1} @ E_{c1} = +20 VOLTS
+15
+10
+5.0
I_{c2} @ E_{c1} = 0 VOLTS
-5.0
-10
-15
-20
-25
-30

SCREEN CURRENT (I_{c2}) IN MILLIAMPERES
GRID-NUMBER 1 CURRENT (I_{c1}) IN MILLIAMPERES
PLATE VOLTAGE IN VOLTS

K-55611-TD85-9
SEPTEMBER 16, 1959

OPERATION CHARACTERISTICS

E_f = RATED VALUE
E_b = 250 VOLTS
E_{c2} = 225 VOLTS
E_{c1} = -15 VOLTS
E_{sig} = 10.6 VOLTS (RMS)

DISTORTION
PLATE CURRENT
POWER OUTPUT
SCREEN CURRENT

POWER OUTPUT IN WATTS
TOTAL HARMONIC DISTORTION IN PERCENT
PLATE CURRENT IN MILLIAMPERES
SCREEN CURRENT IN MILLIAMPERES
LOAD RESISTANCE IN OHMS

K-55611-TD85-10
SEPTEMBER 16, 1959

OPERATION CHARACTERISTICS

TWO TUBES PUSH-PULL
CLASS AB_1
E_f = RATED VALUE E_{c1} = -21 VOLTS
E_b = 300 VOLTS R_L = 4000 OHMS
E_{c2} = 250 VOLTS

PLATE DISSIPATION RATING
PLATE DISSIPATION
SCREEN DISSIPATION RATING (PEAKS OF SPEECH AND MUSIC)
POWER OUTPUT
SCREEN DISSIPATION RATING (CONTINUOUS)
DISTORTION
SCREEN DISSIPATION

TOTAL HARMONIC DISTORTION IN PERCENT: 0, 1, 2, 3, 4, 5, 6, 7
POWER OUTPUT IN WATTS: 0, 5, 10, 15, 20, 25, 30, 35
PLATE DISSIPATION IN WATTS - PER TUBE: 0, 4, 8, 12, 16, 20, 24, 28
SCREEN DISSIPATION IN WATTS - PER TUBE: 0, 2, 4, 6, 8, 10, 12, 14
PEAK INPUT SIGNAL IN VOLTS - GRID-TO-GRID: 0, 10, 20, 30, 40, 50

K-55611-TD85-11A
AUGUST 9, 1962

OPERATION CHARACTERISTICS

TWO TUBES PUSH-PULL
CLASS AB_1
E_f = RATED VALUE E_{c1} = -34 VOLTS
E_b = 400 VOLTS R_L = 5000 OHMS
E_{c2} = 300 VOLTS

PLATE DISSIPATION RATING
SCREEN DISSIPATION RATING (PEAKS OF SPEECH AND MUSIC)
PLATE DISSIPATION
DISTORTION
POWER OUTPUT
SCREEN DISSIPATION RATING (CONTINUOUS)
SCREEN DISSIPATION

TOTAL HARMONIC DISTORTION IN PERCENT: 0, 2, 4, 6, 8, 10
POWER OUTPUT IN WATTS: 0, 10, 20, 30, 40, 50
PLATE DISSIPATION IN WATTS - PER TUBE: 0, 5, 10, 15, 20
SCREEN DISSIPATION IN WATTS - PER TUBE: 0, 2, 4, 6, 8, 10
PEAK INPUT SIGNAL IN VOLTS - GRID-TO-GRID: 0, 10, 20, 30, 40, 50, 60, 70

K-55611-TD85-12A
AUGUST 9, 1962